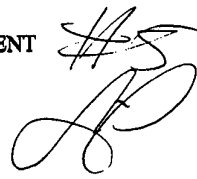


Attorney Docket No.: 5709.200-U.S.

PATENT



IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Application of: Svendsen et al.

Serial No.: 09/441,313

Group Art Unit: 1652

Filed: November 16, 1999

Examiner: Rick Hutson

For: α -amylase variants

**REQUEST TRANSFER OF COMPUTER READABLE
SEQUENCE LISTING FROM PARENT CASE**

Assistant Commissioner for Patents
Washington, DC 20231

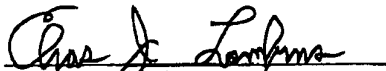
Sir:

The computer-readable form in this application, Serial no. 09/441,313 is identical with that filed in Application Serial No. 09/193,068 filed on November 16, 1998. In accordance with 37 CFR 1.821(e), please use the April 7, 1999 computer readable form filed in that application as the computer readable form for the instant application. It is understood that the Patent and Trademark Office will make the necessary change in application number and filing date for the computer readable form that will be used for the instant application.

The Examiner is hereby to contact the undersigned if there are any questions concerning this response.

Respectfully submitted,

Date: May 11, 2000



Elias J. Lambiris, Reg. No. 33,728
Novo Nordisk of North America, Inc.
405 Lexington Avenue, Suite 6400
New York, NY 10174-6401
(212) 867-0123

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Application of: Svendsen et al.

Serial No.: 09/441,313

Group Art Unit: 1652

Filed: November 16, 1999

Examiner: R. Hutson

For: α -amylase variants

CERTIFICATE OF FACSIMILE TRANSMISSION

Assistant Commissioner for Patents
Washington, DC 20231

Sir:


I hereby certify that the attached correspondence comprising:

1. Request Transfer of Computer Readable Sequence Listing From Parent Case

was sent to the United States Patent Office by telefax to the attention of Examiner R. Hutson, fax number (703) 308-0294.

Respectfully submitted,

Date: May 11, 2000


Carol McFarlane
Novo Nordisk of North America, Inc.
405 Lexington Avenue, Suite 6400
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(212) 867-0123

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FAX: (212) 878-9655

CORPORATE PATENTS

TELECOPY

Page 1 Of 3 Page(s)

Please Hand Deliver The Following To:

TO : USPTO
Examiner R. Hutson
(703) 308-0294
CC :
FROM : Carol McFarlane
DATE : May 11, 2000
MESSAGE :

IF ANY PROBLEMS OCCUR, PLEASE CALL
LOREN HERNANDEZ (212) 867-0123
Fax. (212) 878-9655

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R. H. tson

PAGE: 1

RAW SEQUENCE LISTING
PATENT APPLICATION US/09/441,313

DATE: 05/11/2000
TIME: 13:02:51

Input Set: I441313.RAW

This Raw Listing contains the General Information
Section and up to first 5 pages.

ENTERED

1 <110> APPLICANT: Svendsen, Allan
2 Kjrulff, S ren
3 Bisgaard-Frantzen, Henrik
4 Andersen, Carsten
5 <120> TITLE OF INVENTION: -Amylase Variants
6 <130> FILE REFERENCE: 5709.000-US
7 <140> CURRENT APPLICATION NUMBER: US/09/441,313
8 <141> CURRENT FILING DATE: 1999-11-16
9 <150> EARLIER APPLICATION NUMBER: 09/193,068
10 <151> EARLIER FILING DATE: 1998-11-16
11 <160> NUMBER OF SEQ ID NOS: 31
12 <170> SOFTWARE: FastSEQ for Windows Version 3.0
13 <210> SEQ ID NO 1
14 <211> LENGTH: 485
15 <212> TYPE: PRT
16 <213> ORGANISM: Bacillus sp.
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19 1 5 10 15
20 Leu Pro Asn Asp Gly Asn His Trp Asn Arg Leu Arg Asp Asp Ala Ala
21 20 25 30
22 Asn Leu Lys Ser Lys Gly Ile Thr Ala Val Trp Ile Pro Pro Ala Trp
23 35 40 45
24 Lys Gly Thr Ser Gln Asn Asp Val Gly Tyr Gly Ala Tyr Asp Leu Tyr
25 50 55 60
26 Asp Leu Gly Glu Phe Asn Gln Lys Gly Thr Val Arg Thr Lys Tyr Gly
27 65 70 75 80
28 Thr Arg Asn Gln Leu Gln Ala Ala Val Thr Ser Leu Lys Asn Asn Gly
29 85 90 95
30 Ile Gln Val Tyr Gly Asp Val Val Met Asn His Lys Gly Gly Ala Asp
31 100 105 110
32 Gly Thr Glu Ile Val Asn Ala Val Glu Val Asn Arg Ser Asn Arg Asn
33 115 120 125
34 Gln Glu Thr Ser Gly Glu Tyr Ala Ile Glu Ala Trp Thr Lys Phe Asp
35 130 135 140
36 Phe Pro Gly Arg Gly Asn Asn His Ser Ser Phe Lys Trp Arg Trp Tyr
37 145 150 155 160
38 His Phe Asp Gly Thr Asp Trp Asp Gln Ser Arg Gln Leu Gln Asn Lys
39 165 170 175
40 Ile Tyr Lys Phe Arg Gly Thr Gly Lys Ala Trp Asp Trp Glu Val Asp
41 180 185 190
42 Thr Glu Asn Gly Asn Tyr Asp Tyr Leu Met Tyr Ala Asp Val Asp Met
43 195 200 205
44 Asp His Pro Glu Val Ile His Glu Leu Arg Asn Trp Gly Val Trp Tyr

RAW SEQUENCE LISTING
PATENT APPLICATION US/09/441,313

 DATE: 05/11/2000
 TIME: 13:02:51

Input Set: I441313.RAW

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46  Thr Asn Thr Leu Asn Leu Asp Gly Phe Arg Ile Asp Ala Val Lys His
47  225          230          235          240
48  Ile Lys Tyr Ser Phe Thr Arg Asp Trp Leu Thr His Val Arg Asn Thr
49          245          250          255
50  Thr Gly Lys Pro Met Phe Ala Val Ala Glu Phe Trp Lys Asn Asp Leu
51          260          265          270
52  Gly Ala Ile Glu Asn Tyr Leu Asn Lys Thr Ser Trp Asn His Ser Val
53          275          280          285
54  Phe Asp Val Pro Leu His Tyr Asn Leu Tyr Asn Ala Ser Asn Ser Gly
55          290          295          300
56  Gly Tyr Tyr Asp Met Arg Asn Ile Leu Asn Gly Ser Val Val Gln Lys
57  305          310          315          320
58  His Pro Thr His Ala Val Thr Phe Val Asp Asn His Asp Ser Gln Pro
59          325          330          335
60  Gly Glu Ala Leu Glu Ser Phe Val Gln Gln Trp Phe Lys Pro Leu Ala
61          340          345          350
62  Tyr Ala Leu Val Leu Thr Arg Glu Gln Gly Tyr Pro Ser Val Phe Tyr
63          355          360          365
64  Gly Asp Tyr Tyr Gly Ile Pro Thr His Gly Val Pro Ala Met Lys Ser
65          370          375          380
66  Lys Ile Asp Pro Leu Leu Gln Ala Arg Gln Thr Phe Ala Tyr Gly Thr
67  385          390          395          400
68  Gln His Asp Tyr Phe Asp His His Asp Ile Ile Gly Trp Thr Arg Glu
69          405          410          415
70  Gly Asn Ser Ser His Pro Asn Ser Gly Leu Ala Thr Ile Met Ser Asp
71          420          425          430
72  Gly Pro Gly Gly Asn Lys Trp Met Tyr Val Gly Lys Asn Lys Ala Gly
73          435          440          445
74  Gln Val Trp Arg Asp Ile Thr Gly Asn Arg Thr Gly Thr Val Thr Ile
75          450          455          460
76  Asn Ala Asp Gly Trp Gly Asn Phe Ser Val Asn Gly Gly Ser Val Ser
77  465          470          475          480
78  Val Trp Val Lys Gln
79          485

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80 <210> SEQ ID NO 2
81 <211> LENGTH: 485
82 <212> TYPE: PRT
83 <213> ORGANISM: Bacillus sp.
84 <400> SEQUENCE: 2

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86  1          5          10          15
87  Leu Pro Asn Asp Gly Asn His Trp Asn Arg Leu Arg Asp Asp Ala Ser
88          20          25          30
89  Asn Leu Arg Asn Arg Gly Ile Thr Ala Ile Trp Ile Pro Pro Ala Trp
90          35          40          45
91  Lys Gly Thr Ser Gln Asn Asp Val Gly Tyr Gly Ala Tyr Asp Leu Tyr
92          50          55          60
93  Asp Leu Gly Glu Phe Asn Gln Lys Gly Thr Val Arg Thr Lys Tyr Gly
94  65          70          75          80

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RAW SEQUENCE LISTING
PATENT APPLICATION US/09/441,313

 DATE: 05/11/2000
 TIME: 13:02:51

Input Set: I441313.RAW

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96					85					90					95	
97	Val	Gln	Val	Tyr	Gly	Asp	Val	Val	Met	Asn	His	Lys	Gly	Gly	Ala	Asp
98				100					105					110		
99	Ala	Thr	Glu	Asn	Val	Leu	Ala	Val	Glu	Val	Asn	Pro	Asn	Asn	Arg	Asn
100			115					120					125			
101	Gln	Glu	Ile	Ser	Gly	Asp	Tyr	Thr	Ile	Glu	Ala	Trp	Thr	Lys	Phe	Asp
102		130					135					140				
103	Phe	Pro	Gly	Arg	Gly	Asn	Thr	Tyr	Ser	Asp	Phe	Lys	Trp	Arg	Trp	Tyr
104	145					150				155						160
105	His	Phe	Asp	Gly	Val	Asp	Trp	Asp	Gln	Ser	Arg	Gln	Phe	Gln	Asn	Arg
106				165					170					175		
107	Ile	Tyr	Lys	Phe	Arg	Gly	Asp	Gly	Lys	Ala	Trp	Asp	Trp	Glu	Val	Asp
108			180						185				190			
109	Ser	Glu	Asn	Gly	Asn	Tyr	Asp	Tyr	Leu	Met	Tyr	Ala	Asp	Val	Asp	Met
110			195					200				205				
111	Asp	His	Pro	Glu	Val	Val	Asn	Glu	Leu	Arg	Arg	Trp	Gly	Glu	Trp	Tyr
112		210					215				220					
113	Thr	Asn	Thr	Leu	Asn	Leu	Asp	Gly	Phe	Arg	Ile	Asp	Ala	Val	Lys	His
114	225					230				235						240
115	Ile	Lys	Tyr	Ser	Phe	Thr	Arg	Asp	Trp	Leu	Thr	His	Val	Arg	Asn	Ala
116				245					250					255		
117	Thr	Gly	Lys	Glu	Met	Phe	Ala	Val	Ala	Glu	Phe	Trp	Lys	Asn	Asp	Leu
118			260						265				270			
119	Gly	Ala	Leu	Glu	Asn	Tyr	Leu	Asn	Lys	Thr	Asn	Trp	Asn	His	Ser	Val
120			275					280				285				
121	Phe	Asp	Val	Pro	Leu	His	Tyr	Asn	Leu	Tyr	Asn	Ala	Ser	Asn	Ser	Gly
122		290					295				300					
123	Gly	Asn	Tyr	Asp	Met	Ala	Lys	Leu	Leu	Asn	Gly	Thr	Val	Val	Gln	Lys
124	305					310				315						320
125	His	Pro	Met	His	Ala	Val	Thr	Phe	Val	Asp	Asn	His	Asp	Ser	Gln	Pro
126				325					330						335	
127	Gly	Glu	Ser	Leu	Glu	Ser	Phe	Val	Gln	Glu	Trp	Phe	Lys	Pro	Leu	Ala
128			340						345				350			
129	Tyr	Ala	Leu	Ile	Leu	Thr	Arg	Glu	Gln	Gly	Tyr	Pro	Ser	Val	Phe	Tyr
130			355					360					365			
131	Gly	Asp	Tyr	Tyr	Gly	Ile	Pro	Thr	His	Ser	Val	Pro	Ala	Met	Lys	Ala
132		370					375					380				
133	Lys	Ile	Asp	Pro	Ile	Leu	Glu	Ala	Arg	Gln	Asn	Phe	Ala	Tyr	Gly	Thr
134	385					390				395						400
135	Gln	His	Asp	Tyr	Phe	Asp	His	His	Asn	Ile	Ile	Gly	Trp	Thr	Arg	Glu
136				405					410					415		
137	Gly	Asn	Thr	Thr	His	Pro	Asn	Ser	Gly	Leu	Ala	Thr	Ile	Met	Ser	Asp
138			420						425				430			
139	Gly	Pro	Gly	Gly	Glu	Lys	Trp	Met	Tyr	Val	Gly	Gln	Asn	Lys	Ala	Gly
140			435					440					445			
141	Gln	Val	Trp	His	Asp	Ile	Thr	Gly	Asn	Lys	Pro	Gly	Thr	Val	Thr	Ile
142		450					455					460				
143	Asn	Ala	Asp	Gly	Trp	Ala	Asn	Phe	Ser	Val	Asn	Gly	Gly	Ser	Val	Ser
144	465					470				475						480

RAW SEQUENCE LISTING
PATENT APPLICATION US/09/441,313

DATE: 05/11/2000
TIME: 13:02:51

Input Set: I441313.RAW

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146                               485
147 <210> SEQ ID NO 3
148 <211> LENGTH: 514
149 <212> TYPE: PRT
150 <213> ORGANISM: B. stearothermophilus
151 <400> SEQUENCE: 3
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153      1                               5                               10                               15
154      Pro Asp Asp Gly Thr Leu Trp Thr Lys Val Ala Asn Glu Ala Asn Asn
155      20                               25                               30
156      Leu Ser Ser Leu Gly Ile Thr Ala Leu Trp Leu Pro Pro Ala Tyr Lys
157      35                               40                               45
158      Gly Thr Ser Arg Ser Asp Val Gly Tyr Gly Val Tyr Asp Leu Tyr Asp
159      50                               55                               60
160      Leu Gly Glu Phe Asn Gln Lys Gly Ala Val Arg Thr Lys Tyr Gly Thr
161      65                               70                               75                               80
162      Lys Ala Gln Tyr Leu Gln Ala Ile Gln Ala Ala His Ala Ala Gly Met
163      85                               90                               95
164      Gln Val Tyr Ala Asp Val Val Phe Asp His Lys Gly Gly Ala Asp Gly
165      100                              105                              110
166      Thr Glu Trp Val Asp Ala Val Glu Val Asn Pro Ser Asp Arg Asn Gln
167      115                              120                              125
168      Glu Ile Ser Gly Thr Tyr Gln Ile Gln Ala Trp Thr Lys Phe Asp Phe
169      130                              135                              140
170      Pro Gly Arg Gly Asn Thr Tyr Ser Ser Phe Lys Trp Arg Trp Tyr His
171      145                              150                              155                              160
172      Phe Asp Gly Val Asp Trp Asp Glu Ser Arg Lys Leu Ser Arg Ile Tyr
173      165                              170                              175
174      Lys Phe Arg Gly Ile Gly Lys Ala Trp Asp Trp Glu Val Asp Thr Glu
175      180                              185                              190
176      Asn Gly Asn Tyr Asp Tyr Leu Met Tyr Ala Asp Leu Asp Met Asp His
177      195                              200                              205
178      Pro Glu Val Val Thr Glu Leu Lys Ser Trp Gly Lys Trp Tyr Val Asn
179      210                              215                              220
180      Thr Thr Asn Ile Asp Gly Phe Arg Leu Asp Ala Val Lys His Ile Lys
181      225                              230                              235                              240
182      Phe Ser Phe Phe Pro Asp Trp Leu Ser Asp Val Arg Ser Gln Thr Gly
183      245                              250                              255
184      Lys Pro Leu Phe Thr Val Gly Glu Tyr Trp Ser Tyr Asp Ile Asn Lys
185      260                              265                              270
186      Leu His Asn Tyr Ile Met Lys Thr Asn Gly Thr Met Ser Leu Phe Asp
187      275                              280                              285
188      Ala Pro Leu His Asn Lys Phe Tyr Thr Ala Ser Lys Ser Gly Gly Thr
189      290                              295                              300
190      Phe Asp Met Arg Thr Leu Met Thr Asn Thr Leu Met Lys Asp Gln Pro
191      305                              310                              315                              320
192      Thr Leu Ala Val Thr Phe Val Asp Asn His Asp Thr Glu Pro Gly Gln
193      325                              330                              335
194      Ala Leu Gln Ser Trp Val Asp Pro Trp Phe Lys Pro Leu Ala Tyr Ala

```

Input Set: I441313.RAW

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195          340          345          350
196 Phe Ile Leu Thr Arg Gln Glu Gly Tyr Pro Cys Val Phe Tyr Gly Asp
197          355          360          365
198 Tyr Tyr Gly Ile Pro Gln Tyr Asn Ile Pro Ser Leu Lys Ser Lys Ile
199          370          375          380
200 Asp Pro Leu Leu Ile Ala Arg Arg Asp Tyr Ala Tyr Gly Thr Gln His
201          385          390          395          400
202 Asp Tyr Leu Asp His Ser Asp Ile Ile Gly Trp Thr Arg Glu Gly Val
203          405          410          415
204 Thr Glu Lys Pro Gly Ser Gly Leu Ala Ala Leu Ile Thr Asp Gly Pro
205          420          425          430
206 Gly Gly Ser Lys Trp Met Tyr Val Gly Lys Gln His Ala Gly Lys Val
207          435          440          445
208 Phe Tyr Asp Leu Thr Gly Asn Arg Ser Asp Thr Val Thr Ile Asn Ser
209          450          455          460
210 Asp Gly Trp Gly Glu Phe Lys Val Asn Gly Gly Ser Val Ser Val Trp
211          465          470          475          480
212 Val Pro Arg Lys Thr Thr Val Ser Thr Ile Ala Trp Ser Ile Thr Thr
213          485          490          495
214 Arg Pro Trp Thr Asp Glu Phe Val Arg Trp Thr Glu Pro Arg Leu Val
215          500          505          510
216 Ala Trp
217 <210> SEQ ID NO 4
218 <211> LENGTH: 483
219 <212> TYPE: PRT
220 <213> ORGANISM: B. licheniformis
221 <400> SEQUENCE: 4
222 Ala Asn Leu Asn Gly Thr Leu Met Gln Tyr Phe Glu Trp Tyr Met Pro
223 1 5 10 15
224 Asn Asp Gly Gln His Trp Arg Arg Leu Gln Asn Asp Ser Ala Tyr Leu
225 20 25 30
226 Ala Glu His Gly Ile Thr Ala Val Trp Ile Pro Pro Ala Tyr Lys Gly
227 35 40 45
228 Thr Ser Gln Ala Asp Val Gly Tyr Gly Ala Tyr Asp Leu Tyr Asp Leu
229 50 55 60
230 Gly Glu Phe His Gln Lys Gly Thr Val Arg Thr Lys Tyr Gly Thr Lys
231 65 70 75 80
232 Gly Glu Leu Gln Ser Ala Ile Lys Ser Leu His Ser Arg Asp Ile Asn
233 85 90 95
234 Val Tyr Gly Asp Val Val Ile Asn His Lys Gly Gly Ala Asp Ala Thr
235 100 105 110
236 Glu Asp Val Thr Ala Val Glu Val Asp Pro Ala Asp Arg Asn Arg Val
237 115 120 125
238 Ile Ser Gly Glu His Leu Ile Lys Ala Trp Thr His Phe His Phe Pro
239 130 135 140
240 Gly Arg Gly Ser Thr Tyr Ser Asp Phe Lys Trp His Trp Tyr His Phe
241 145 150 155 160
242 Asp Gly Thr Asp Trp Asp Glu Ser Arg Lys Leu Asn Arg Ile Tyr Lys
243 165 170 175
244 Phe Gln Gly Lys Ala Trp Asp Trp Glu Val Ser Asn Glu Asn Gly Asn

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Please Note:

Use of n and/or Xaa have been detected in the Sequence Listing. Please review the Sequence Listing to ensure that a corresponding explanation is presented in the <220> to <223> fields of each sequence which presents at least one n or Xaa.

Input Set: I441313.RAW

Line	Error/Warning	Original Text
745	W "N" or "Xaa" used: Feature required	gcgttttgcc ggccgacata nnnnnnnnnn nnnnnnnn
746	W "N" or "Xaa" used: Feature required	nncaaacctg aatt
756	W "N" or "Xaa" used: Feature required	gcnnnnnnnn nnnnnnnnnn nnnnnnnnnn nnnnnnnn
766	W "N" or "Xaa" used: Feature required	gtcgccttcc ctgtgccann nnnnnnnnnn nnnnnnnn
784	W "N" or "Xaa" used: Feature required	taagatcggt tcaattttnn nnnnnnnnnn nnnnnnnn
802	W "N" or "Xaa" used: Feature required	ttccatgctg catcgacaca gggaggcggc tatgat
803	W "N" or "Xaa" used: Feature required	nnnnnnnnnn nnnnnnnnnn nnnnnnnnnn nnnnnn
820	W "N" or "Xaa" used: Feature required	gtccaaacat ggtttaagcc nnnnnnnnnn nnnnnnnn
821	W "N" or "Xaa" used: Feature required	nntcaggtt tctacgggga